

without inquiring into average values in Turner Reservoir; and it ignores average total phosphorus in the Ten Mile River.

- The regulation does not require tributaries to meet the 0.025 mg/l standard; rather it asks whether the average phosphorus in tributaries contributes to an average phosphorus exceedance in the Reservoir. Yet, the rationale for the limit proceeds on the assumption that this limit applies to the tributary river (see below).
- There has been no attempt to evaluate the relative contributions of phosphorus of the various point and non-point sources and no showing that the Attleboro WWTP, more than a mile upstream, "causes" any exceedance in the Turner Reservoir.
- Turner Reservoir is a man-made impoundment, no longer used as a "reservoir". See Army Corps of Engineers Study, excerpts attached as Exhibit 7. Nor is it a "Pond" See CDM comments. It is the impoundment itself that has "caused" any exceedances. Blaming an out-of-state municipality for the alleged water quality problems caused by impounding the river is not consistent with the regulations or fair play.
- There is no showing of what phosphorus "naturally occurs." Without such data, it is impossible to lay blame at Attleboro's feet.

RIDEM's comments to the EPA on the Rhode Island regulation materially misstate the regulation's plain language. In its comments on the North Attleborough and Attleboro WWTP draft NPDES permit (p. 2), RIDEM claims that "[d]etermination of whether the water quality criterion of 25 ug/l is applicable **to the Ten Mile River** requires evaluation of whether it flows into a lake, pond or reservoir (including whether run of the river impoundments constitute a lake pond or reservoir)." [Emphasis added]. The regulation, however, does not apply the 25 ug/l criterion to any river ("tributary") itself. Rather, by its plain terms, it asks whether the tributary's average phosphorus causes an exceedance of average phosphorus in the "**reservoir**". There is no numerical limit for the level of phosphorus in the river. By reprising RIDEM's erroneous construction, EPA has imposed a non-applicable criterion upon the Ten Mile River and upon the Attleboro WWTP. North Attleborough Response to Comments, p. 16.

Since the question is the "Reservoir's" ability to maintain an average 0.025 mg/l level, EPA must determine the "Reservoir's" Loading Capacity, which the RI regulations (Rule 7) define as "the maximum amount of loading that a surface water can receive without violating water quality standards." EPA has not done so. Nor has the Reservoir's Load Allocation been presented. See also RI Regs, Rule 7 (defining "load allocation" as "the portion of a receiving water's loading capacity that is attributed either to one of its nonpoint sources of pollution or to natural background sources"). These rules demonstrate that Rhode Island contemplates essentially the same detailed analysis as Friends & Fishers, as a



matter of interpretation of state water quality regulations. Indeed, RIDEM's comments of September 12, 2006 state that the load allocation analysis "must" be done. There is no short-cut in applying the Rhode Island regulations. The draft permit errs in attempting to employ one.

A brief review of the broader statutory and regulatory context may also be in order. As the City noted in its original comments on the draft permit, the total phosphorus limits must be justified, if at all, under Section 401(a)(2) [33 U.S.C. § 1341(a)(2)] and 40 C.F.R. § 122.44(d), relating to conditions in NPDES permits that will ensure compliance with the "applicable water quality requirements" of a "downstream affected state", namely Rhode Island. In this context, EPA must determine what state-law standards are "applicable" Arkansas, 503 U.S. at 110. A system that places burdens unequally or disproportionately upon out-of-state dischargers would be discriminatory and contrary to congressional intent. Where, as argued above and in the City's original comments, the Attleboro draft permit limits are more stringent with regard to Rhode Island waters than the limits contained in the language of RIDEM's actual regulations, the permit limits contravene the CWA and the legislative purpose of uniformity. If Rhode Island can allocate the principal burden of lowering pollution *within its waters* to out-of-state dischargers (without even examining the relative contributions of various sources, including in-state ones), it can shift the responsibility and expense of improving its water quality onto those who lack a political voice in Rhode Island. As a matter of policy, fairness and law, EPA must not allow that to occur here and therefore must withdraw the total phosphorus permit limits proposed in the amended draft permit. As argued extensively above, Attleboro's concern about even-handed treatment is heightened by the level of speculation and scientific uncertainty underlying the proposed phosphorus limits.<sup>24</sup>

**Response #F.6:** As discussed below, EPA agrees with the commenter's interpretation that the numeric criterion of 0.025 mg/l applies to the reservoir, not to the stream entering the reservoir. The commenter should be aware that the 0.1 mg/l phosphorus effluent limit is necessary to attain Massachusetts narrative water quality standards in the free flowing segments of the Ten Mile River irrespective of the numeric criterion applicable within the Turner Reservoir.<sup>25</sup> See

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<sup>24</sup> Applying the rules based upon valid science is important, not only to ensure that public monies are spent in the most effective way for pollution abatement, but also to ensure that abrupt changes in proposed limits are based upon science, instead of pressure from one side or the other. Attleboro's file review discloses that EPA is, understandably, under pressure to deliver something to RIDEM, so that RIDEM can obtain concessions from the industries that it regulates. See Exhibit 8 to this letter. But imposing burdens upon out-of-state municipalities, who are not represented in Rhode Island's process, must be based upon science and established regulations.

<sup>25</sup> While the free flowing segments of the Ten Mile River in Rhode Island have not been listed for nutrient impairment, EPA notes that the instream sampling data indicate phosphorus effluent limits well above the 0.1 mg/l level that EPA has determined to be necessary to control the effects of eutrophication.



Response #F.1 discussing in-stream targets necessary to control cultural eutrophication. With that said, the 0.1 mg/l phosphorus effluent limit will, in addition, result in an in-stream concentration that is low enough at the inlet to Central Pond to ensure that the Rhode Island numeric criterion of 0.025 mg/l, applicable within the Turner Reservoir, is not exceeded. For the reasons stated in Response #F.2 above, EPA does not regard a seasonally averaged phosphorus effluent limit of 0.1 mg/l as adequately protective in this instance. EPA has determined that use of 7Q10 dilution flows to calculate the limit, along with a 30-day average for measuring compliance with the limit, is reasonable in this case.

In its comments, RIDEM compared the characteristics of Turner Reservoir to EPA criteria defining a lake found in *Nutrient Criteria Technical Guidance Manual: Lakes and Reservoirs: First Edition*. Turner Reservoir, with a surface area of about 225 acres (North and South combined), clearly meets the areal criterion of 10 acres, but as the commenter has noted, does not meet the retention time criterion at average river flow. RIDEM has informed EPA that it calculated retention time based on 7Q10 flow. Under this flow regime, the Reservoir has a retention time of about 42 days.

Notwithstanding the different calculations of retention time, the Rhode Island water quality standards do not include or reference the EPA definition of lake in its definition of "lake, pond, kettlepond, or reservoir." The RI standards define a "lake, pond or reservoir" as "any body of water, whether naturally occurring or created in whole or in part, excluding sedimentation control or stormwater retention/detention basins, unless constructed in waters of the State," and require that the "average Total Phosphorus shall not exceed 0.025 mg/l in any lake, pond, kettlehole or reservoir, and average Total P in tributaries at the point where they enter such bodies of water shall not cause exceedance of this phosphorus criteria, except as naturally occurs, unless the Director determines, on a site-specific basis, that a different value for phosphorus is necessary to prevent cultural eutrophication." Hydraulic retention time is not in the definition of lake, pond, kettlepond, or reservoir, nor in the numeric criteria established for lakes, ponds, or reservoirs. In addition, RIDEM has identified Turner Reservoir as an impaired lake in its 303(d) list of impaired waters (Waterbody ID RI0004009L-01B). Therefore, EPA has concluded that it is a "lake, pond, kettlepond or reservoir" within the meaning of the Rhode Island's water quality standards and subject to the numeric water quality criteria for phosphorus. *See also*, Rhode Island Water Quality Regulations, Rule 4 ("Liberal Application") ("The terms and provisions of these rules and regulations shall be liberally construed to allow the Department to effectuate the purposes of state law.").

Rule 8(D)(2)(10)(a), Rhode Island's numeric criterion for lakes and ponds, does not itself set forth the hydrological condition under which the "average" total phosphorus value of 0.025 mg/l must be met, but under Rhode Island's standards aquatic life criteria for freshwaters must not be exceeded at or above the 7Q10. *See* Rule 8(E)(1) ("The water quality standards apply under the most adverse



conditions..."). EPA interprets Rhode Island's numeric criterion for lakes as having to be met when the lake's inlet streams are at 7Q10.

Controlling phosphorus effluent discharges from a Massachusetts facility to ensure compliance with downstream water quality standards is fully consistent with the CWA and its implementing regulations. See CWA § 401(a)(2) and 40 C.F.R. §§ 122.4(d), 122.44(d)(1)(vii)(4). The CWA expressly contemplates such an interplay between the affected states to address the impacts of water pollution, and EPA therefore disagrees that the permit limit at issue here is inequitable or offends notions of fairplay.

Whether a water body is natural or artificial does not alter EPA's analysis and its decision to impose a phosphorus effluent limit of 0.1 mg/l. Rhode Island's water quality standards do not make any relevant distinction between natural and manmade water bodies; applicable water quality standards must be met in both cases. According to the Army Corps of Engineers' reports<sup>26</sup>, the Turner Reservoir Dam was constructed around 1930 to form a water supply reservoir for the City of East Providence, submerging a previously constructed mill dam located about 0.75 miles upstream. The reservoir was used for water supply until 1969 and is currently heavily used for recreation, including non-powered boating, canoeing, recreational fishing, hiking and bird watching. The commenter's unsupported speculation that the receiving water is already impaired through a combination of nonpoint source loading and/or natural background, even if true, would not be a license for the Attleboro discharge to continue unabated. From a permitting perspective, the relevant fact is that the receiving water is being further impaired by point source phosphorus contributions from the Attleboro WCPF and this loading must be controlled sufficiently in order to protect the designated uses assigned to the water body by Rhode Island.

EPA believes it is reasonable to conclude that natural background would be below the numeric water quality criterion of 25 ug/l and is not itself resulting in a violation of the criterion. Regarding natural background concentrations, the definition in the Rhode Island water quality standards is "all prevailing dynamic environmental conditions in a waterbody or segment thereof, other than those human-made or human-induced." The ecoregion criteria value of 0.024 mg/l represents an estimate of the "best attainable, most natural condition of the resource base at this time." See *Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Nutrient Ecoregion XIV* (December 2000). This value would be greater than "natural background conditions" as defined by the RI standards since it includes an attainability provision, seeming to allow some anthropogenic effects.

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<sup>26</sup> The Turner Reservoir Study, February 2001 and Draft Detailed Project Report and Environmental Assessment, Ecosystem Restoration, Ten Mile River, East Providence Rhode Island, April 2005



EPA concurs that the numeric criterion applies to the reservoir, not to the stream entering the reservoir. The Gold Book recommends a concentration of 0.05 mg/l for a stream entering a lake or reservoir and a concentration of 0.025 mg/l in the reservoir. However, given the severe eutrophication in the reservoir, and the data showing that at times the phosphorus concentration in the reservoir exceeds the inlet concentration, it is clear that the water body has exceeded its loading capacity for nutrients. There is currently no additional assimilative capacity in the reservoir and, until phosphorus resuspension subsides, concentrations of phosphorus in the reservoir exceeding the inlet concentration may continue even with significant reductions in the inlet concentration. For this reason, EPA believes the phosphorus concentrations in the inlet to the reservoir must achieve the Gold Book recommended concentration of 0.05 mg/l and should approach Rhode Island's numeric criterion of 0.025 mg/l in order to ensure compliance with standards.

For demonstration purposes, EPA developed a mass balance spreadsheet to estimate the phosphorus concentration at the inlet to Turner Reservoir using assumed Attleboro discharge flows and concentrations and assumed background flows and concentrations.<sup>27</sup> The spreadsheet estimates flows under various summer average conditions and applies assumed concentrations. EPA ran the analysis using actual POTW discharge flows. See 10A through 10D. The impacts of attenuation of the Attleboro discharge were estimated by reducing the effluent concentration. For example, we estimated a 10 percent attenuation rate by using a discharge concentration of 0.09 mg/l.

EPA first looked at a scenario assuming an effluent limit of 0.2 mg/l (the limit in the first draft permit) and background at 0.03 mg/l, which resulted in an inlet concentration ranging from 0.053 mg/l under average summer conditions to 0.086 mg/l under 7Q10 conditions, which exceeds the Gold Book recommendations of 0.050 mg/l. See Attachment 10A.

As can be seen in Attachment 10B, using the proposed discharge limitation of 0.1 mg/l (no attenuation) and a background concentration of 0.03 mg/l, the

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<sup>27</sup> This analysis is based on the assumption that, over the long term, the assumed background concentration at the Attleboro WPCF will be equal to 0.030 mg/l, the average concentration seen in the Sevenmile River during the 2002 MassDEP sampling, which was the lowest concentration seen in any tributary, and would be the background in the Ten Mile River upstream of Attleboro after phosphorus load reductions from the North Attleborough facility are achieved and after the expected reduction in phosphorus resuspension occurs over time. Contributing to EPA's view in this regard is that there are seven miles and four significant impoundments between the North Attleborough discharge and the Attleboro discharge that would serve to attenuate the levels of phosphorus in the improved North Attleborough discharge. EPA does not believe it is reasonable to assume a similar level of attenuation of the Attleboro load given the short (3 mile) distance from the Attleboro discharge to the inlet of Central Pond. As discussed previously, and as evidenced by the 2002 MassDEP data, this does not reflect the existing level of background phosphorus concentrations at the point of discharge. EPA's rationale for not assuming this future background level for the purposes of establishing the permit limit, which is calculated using existing background conditions, is outlined above in Response #F.2.



concentration at the inlet to Central Pond would range from 0.039 mg/l under average summer conditions to 0.053 mg/l under 7Q10 conditions.

Attachment 10C shows an estimate using a 10% attenuation of Attleboro's phosphorus (assumed effluent concentration of 0.09 mg/l) and an assumption that background concentration equaled the ecoregion criteria of 0.024 mg/l. Under these assumptions, the estimated inlet concentration ranged from 0.033 under average summer conditions to 0.046 mg/l under 7Q10 conditions. Under this scenario, the inlet concentrations are less than the Gold Book recommendations of 0.050 mg/l under 7Q10 conditions, and closer to the Rhode Island criterion under average summer conditions.

Attachment 10D shows an estimate using a 10% attenuation of Attleboro's phosphorus (assumed effluent concentration of 0.09 mg/l) and an assumption that background concentration equaled 0.01 mg/l, which is EPA's estimate of natural background conditions. Under these assumptions, the estimated inlet concentration ranged from 0.021 under average summer conditions to 0.036 mg/l under 7Q10 conditions. Under this scenario, the inlet concentration is far less than the Gold Book recommendation of 0.050 mg/l under 7Q10 conditions, and less than the Rhode Island criterion under average summer conditions.

In each of the scenarios that include a 0.1 mg/l limitation for the Attleboro WPCF (both with and without attenuation), the projected in-stream concentration essentially meets the Gold Book value of 0.050 mg/l and comes close to the meeting the numeric criterion of 0.025 mg/l. Because the inlet concentrations will meet the recommended Gold Book value of 0.50 mg/l, and because some assimilative capacity in the Turner Reservoir will become available in the future as conditions improve as a result of point source phosphorus reductions from the North Attleborough and Attleboro treatment facilities, combined with the gradual subsidence of phosphorus resuspension from the sediments over time, EPA believes at this time that a limit of 0.1 mg/l will be sufficient to ensure compliance with Rhode Island's water quality standards. It is of course also required in order to meet Massachusetts' water quality standards.

The two definitions ("Loading Capacity" and "Load Allocation") from Rhode Island's water quality standards that are cited by the commenter are not a plausible basis to create, implicitly or otherwise, an affirmative regulatory obligation on EPA to conduct a comprehensive loading analysis before it can establish a permit limit on a point source discharger of pollutants. Such an interpretation does not logically follow from the text of those definitions and would, moreover, impermissibly conflict with EPA's explicit duties under the CWA. See previous responses relative to the need for a TMDL or the need to quantify all other sources before establishing point source limits that are consistent with ensuring that the point source will not cause or contribute to water quality impairments.



**Comment #F.7:** CDM commented that the agency failed to establish that the John V. Turner Reservoir is in fact subject to the quoted Rhode Island Standard. Although it is named a reservoir, it no longer functions as such and the Agency presents no information to support the assertion that the cited Rhode Island standard applies to this water body. In its comments on the initial draft permit, RIDEM has asserted that the Reservoir meets RIDEM's definition of a lake. This definition reflects nutrient management guidance developed by EPA. As indicated by RIDEM, this guidance defines lakes as water bodies with a mean water residence time of 14 days or more. According to studies conducted by the Army Corps of Engineers the reservoir has a volume of 350 million gallons (See Attachment 1 hereto). Using this value, and the flow data from the USGS gage located immediately downstream of the John V. Turner Reservoir, the mean water residence time of this impoundment is 9.68 days. Thus, the impoundment does not meet the definition of a lake used by RIDEM to distinguish between bodies of water subject to the standard, and those that are not.

CDM also commented that that in developing the proposed limits EPA did not present any information to show how a 0.1 mg/l limits is necessary to keep the "Average Total Phosphorus" below 0.025 in Turner Reservoir, and that it appeared that the Agency relied upon flow conditions associated with the seven day, ten year low flow to develop the limit. CDM pointed out that in most systems, the seven day ten year low flow is substantially below average flow, and represents a flow that happens very infrequently, far different from the "average" referenced in the state's water quality standards. CDM went on to cite EPA's argument that dilution and in-stream attenuation will serve to achieve compliance with the Rhode Island standard, but no information is presented to quantify these factors to show how this meets the Rhode Island standard.

CDM states that the use of average concentrations over appropriately long periods is recommended by the Agency's guidance. In its "Ambient Water Quality Criteria Recommendations; Information Supporting the Development of State and Tribal Nutrient Lakes and Reservoirs in Nutrient Ecoregion XIV" EPA encourages States to:

"Identify appropriate periods of duration (how long) and frequency (how often) of occurrence in addition to magnitude (how much). EPA does not to recommend identifying nutrient concentrations that must be met at all times; rather a seasonal or annual averaging (e.g. based on weekly or biweekly measurements) is considered appropriate. However, these central tendency measures should apply each season or each year, except under the most extraordinary conditions (e.g., a 100 year flood)." See Attachment 2.

The use of seasonal averages would provide additional dilution, and would thus serve to lower the treatment requirements of the City.



**Response #F.7:** See Response #F6 for responses to the comments regarding whether Turner Reservoir is a reservoir within the meaning of the Rhode Island Water Quality Standards, and regarding EPA analyses of whether the 0.1 mg/l limit is necessary to achieve water quality standards in Central Pond/Turner Reservoir.

Rhode Island has promulgated, and EPA has approved, a numeric criterion for lakes, ponds and reservoirs in its water quality standards. The statement from the guidance document does not mandate the use of any particular flow regime, but specifically leaves that decision to the States ("EPA encourages States..."). Rhode Island does not use seasonal or annual average flows when applying its numeric nutrient criterion, but instead, consistent with its water quality standards, conservatively assumes critical low flows, *i.e.*, 7Q10, when determining available dilution.<sup>28</sup> (Consistent with the guidance, the State does not require the criterion to be met at all times, or on a daily basis). When establishing a limit that will achieve applicable Rhode Island nutrient water quality criteria, EPA thus also assumes a dilution flow at the inlet equal to 7Q10.

Also, for the reasons discussed in Response #F.2 above, EPA imposes this limit as a monthly rather than seasonal average limit.

**Comment #F.8:** CDM commented that the 1986 Quality Criteria for Water suggests a level of 0.1 mg/l as "a desired goal for the prevention of plant nuisances in streams or other flowing waters" and references a 1973 publication of Kenneth Mackenthun, a copy of which is included as attachment 4 to this document. However, that document does not present information concerning development of the 0.1 mg/l "desired goal", but rather makes reference to a 1968 document published in the Journal of the American Water Works Association by the same author. A copy of the 1968 paper is included as attachment 5 to this document. The 1968 document indicates that "... A considered judgment suggests that to prevent biological nuisances, total phosphorus should not exceed 100 ug/l P at any point within the flowing stream, nor should 50 ug/l be exceeded where waters enter a lake, reservoir or other standing water body ..." (Mackenthun, 1968 p 1053). A careful reading of this document suggests that it is referencing streams which are tributary to water supply reservoirs and lakes and standing waters that serve as sources of water supply. This would explain why it was published in what would otherwise be thought to be about water supply, and not water pollution. Moreover, the 1968 document presents no information concerning the development of the recommendation – and so it presents no guidance on how it should be applied – seasonally, monthly, or over the growing season?

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<sup>28</sup> In terms of the relative stringency of the two approaches, it is worth noting that Rhode Island's numeric nutrient criterion, even though applied using a more stringent flow regime, is numerically less stringent than the EPA ecoregional recommendations; the Rhode Island criterion of 25 ug/l is significantly higher than the reference condition for total phosphorus concentration of 8 ug/l for subecoregion 59 of Ecoregion XIV, where the discharge is located.



Similarly, the Agency's recommendations with respect to nutrient criteria for streams in Ecoregion IV is clearly an annual average value, because it was developed based on the 25<sup>th</sup> percentile of all seasons of data, and not a value associated with 7 day 10 year low flow conditions. It is thus inappropriate to apply this criterion to low flow conditions.

Finally, it is not clear that the set of values contained in the Nutrient Criteria Technical Guidance manual are intended to be applied at extreme low flow conditions. Moreover, that table is presented in a larger context dealing with guidance to the states as to how the States might develop state water quality standards; it is not presented as proscriptive limits that must be used. In that respect, EPA should await development of actual water quality standards for phosphorus by both Rhode Island and Massachusetts.

**Response #F.8:** EPA disagrees with the assertion that the Gold Book recommendation regarding in stream phosphorus concentrations is limited to sources of water supply and cannot be used as guidance, among other relevant sources of information, in this matter. The Gold Book includes no such limitation or characterization of its recommendation. Similarly, the 1973 paper by Kenneth Mackenthun referenced by the Gold Book includes no such restrictions. The commenter does not explain how a "careful reading" of a 1968 publication by the same author supports the suggested restrictions on the recommendations. To the contrary, the 1968 article twice states "total phosphorus concentrations should not exceed 100 ug/l at any point within a flowing stream" with no reference that this recommendation is limited to tributaries to drinking water supplies. Indeed, if Mr. Mackenthun intended such a restriction, he presumably would have explicitly included it in his 1968 or 1973 publications.

Regarding application of the recommendations, the Gold Book values are expressed as values not to be exceeded at any time and not seasonal or annual averages.<sup>29</sup> EPA has elsewhere explained its rationale for applying the 0.1 mg/l phosphorus effluent limit as an average monthly limit that is imposed during the growing season and that assumes a dilution flow equal to the 7Q10.

The literature values cited previously from the Nutrient Technical Guidance Manual are based on seasonal averages and are more stringent than the 0.1 mg/l applied here.

With respect to the appropriate averaging periods for the Ecoregion guidance values for rivers and streams, the reference value was developed based on the 25th percentile of all seasons of data.<sup>30</sup> It does not follow, however, that the

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<sup>29</sup> It should be noted that several states apply total phosphorus criteria of 0.1 mg/l as a maximum criterion. See Table 2 ("Examples of Numeric Criteria and Guidelines for Total Phosphorus in the U.S.") above.

<sup>30</sup> EPA assumes the commenter's reference to Ecoregion IV is a typographical error and was meant to reference Ecoregion XIV, where the discharge is located.



criteria should necessarily be applied as an annual average if the data do not vary significantly over the course of the year. The data used to calculate the reference conditions is shown in Appendix B of the Ecoregion Guidance Document and is sorted by season. For subregion 59, in which the discharge is located, the 25<sup>th</sup> percentile (P25) for each season is presented on page 11 of the Appendix. It shows that the P25 for the seasons range from 20-28 ug/l with a summer value of 25 ug/l. Given that it is most critical that phosphorus concentrations be low during the growing season, applying the ecoregion criteria as a summer average, as was done in the analyses reflected in Response #F.6, is reasonable.

EPA is not permitted to wait for development of numeric criteria for phosphorus prior to establishing an effluent limit. EPA must impose limits on pollutants that have a reasonable potential to cause or contribute to violations of water quality standards, including narrative criteria. 40 C.F.R. § 122.44(d)(1)(i). As discussed earlier in this response, EPA reliance on the ecoregional criteria, guidance and other relevant information is expressly contemplated by 40 C.F.R. § 122.44(d)(1)(vi), and EPA believes reliance on such technical materials is reasonable when interpreting a narrative criterion.

**Comment #F.9:** CDM commented that the City believed it could achieve the 0.2 mg/l phosphorus limit contained in the August 2006 draft permit and that achieving the newly proposed limits is expected to require the addition of new treatment processes at substantial costs to the City.

**Response #F.9:** Effluent data submitted by the City on its discharge monitoring reports for the May through October 2007 show that the City achieved monthly average discharge concentrations of 0.1 mg/l. However, if new facilities are necessary, in general, cost considerations are not permissible factors in setting water quality based effluent limits. Section 301(b)(1)(C) of the CWA requires achievement of “any more stringent limitation [than the technology-based requirements set forth in Section 301(b)(1)(A) and (B)], including those necessary to meet water quality standards...established pursuant to any State law or regulation....” Thus, NPDES permits must contain effluent limitations necessary to attain and maintain the water quality standards, without consideration of the cost, availability or effectiveness of treatment technologies. *See U.S. Steel Corp. v. Train*, 556 F.2d 822, 838 (7th Cir. 1977) (finding “states are free to force technology” and “if the states wish to achieve better water quality, they may [do so], even at the cost of economic and social dislocations”); *see In re City of Moscow*, 10 E.A.D. 135, 168 (EAB 2001) (stating that section 301(b)(1)(C) “requires unequivocal compliance with applicable [water quality standards], and does not make any exceptions for cost or technological feasibility”); *see also In re New England Plating Co.*, 9 E.A.D. 726, 738 (EAB, 2001) (“In the first instance, there is little question that cost considerations play no role in the *setting* of effluent limits.”) (emphasis in original).

Factors such as cost can be taken into account, however, in establishing a compliance schedule. A compliance schedule for Attleboro will be reasonable



and consistent with the requirements of the Clean Water Act. In addition, it is EPA's intent to work closely with MassDEP and RIDEM to ensure that the facilities in each state are on the same approximate schedules. *See* Letter dated January 8, 2007 from Ken Moraff, Deputy Director, Office of Ecosystem Protection, EPA to Glenn Haas, Director, Bureau of Resource Protection, MassDEP and Alicia Good, Assistant Director, Water Resources, RIDEM. In this way, we will be able to best assess improvement to water quality.

**Comment #F.10:** If the 0.1 mg/l phosphorus limit is proposed by MassDEP as well as by EPA, MassDEP should reconsider and remove the new phosphorus limit from the state permit (as it has done with the new nitrogen limit). The Fact Sheet is replete with references to DEP's highest and best practicable treatment of 0.2 mg/l. To depart from that limit without a TMDL study or other data would be arbitrary and capricious.

At least, given MassDEP's consistent position that 0.2 mg/l is "highest and best practical treatment" and the approach that it took in *Friends & Fishers*, 446 Mass. at 840-844 (namely, allowing a discharge that affected a stressed pond, only after a comprehensive study of other sources and explicitly allocating permissible nursery loads for the WWTP), it would be unlawful, arbitrary and capricious for DEP to impose the 0.1 mg/l limit here.

**Response #F.10:** The commenter's recommendation to MassDEP is noted for the record. The highest and best practical treatment level of 0.2 mg/l is a technology-based requirement included in the Massachusetts Water Quality Standards, applicable to "any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication...", and is not a site-specific water quality-based criterion. The revised Fact Sheet and this response to comments describe why the state's technology standard is insufficient to result in attainment of Massachusetts water quality standards and Rhode Island water quality standards.

**Comment #F.11:** There are procedural irregularities. First, under 40 C.F.R. 124.14, given the reopening of the comment period, there should have been a 60 day comment period, not a 30 day one. Scheduling this 30 day comment period during the month of August, a customary vacation time for many people, has not allowed as full participation as might have been desired. The EPA's procedure is therefore irregular. The City reserves its rights as well as its rights to submit additional comments, should EPA decide to follow 40 C.F.R. 124.14.

Moreover, the City requests a hearing, to address the important issues raised above. *See* 40 C.F.R. 124.11 and 124.12. Trying to deal indirectly through EPA with issues that are apparently driven by RIDEM is a difficult process, particularly as RIDEM may well comment on the revised draft limits, but the City is not presently privy to those comments, if any.



**Response #F.11:** As indicated in the Public Notice, EPA reopened the public comment on the draft permit pursuant to 40 C.F.R. § 124.14(b) and, in accordance with 40 C.F.R. § 124.14(c), sought comments on the revised monthly average total phosphorus limit. The public notice period was established in accordance with 40 C.F.R. § 124.10 and consistent with the requirements of 40 C.F.R. § 124.14(b). In addition to being consistent with the regulations, in EPA's experience, a 30 day public comment period has been adequate even where complex technical matters are at issue. EPA cannot reasonably be expected to time public comment periods around the "customary" vacation schedules of the regulated community, which it has no way of knowing. Even so, the City has not identified how its participation in these proceedings has been compromised; detailed comments on the revised permit were received from both the law firm and engineering consulting firm representing the City. Given the limited scope of the proposed permit revisions, the 30 day period for public comment allowed under 40 C.F.R. § 124.10 provided sufficient time to comment on the proposed revisions.

All comments submitted on the permit (including the revision) are part of the public record. The record has been available for the City's review.

Given the limited comments received and the fact that there were no other hearing requests, EPA has decided to deny the hearing request consistent with the provisions of 40 C.F.R. § 124.12.

This action in no way prejudices the City's right to appeal any final permit decision to the Environmental Appeals Board and/or to the Massachusetts's Division of Administrative Law should it disagree with the final permit.

**The following comments were received from Sam Butterfield, President of NewStream, in a letter date August 30, 2007:**

**Comment #G.1:** As a City of Attleboro taxpayer, sewer system ratepayer and industrial user, NewStream would like to offer the following comment on the above-referenced draft permit. Our comment has to do primarily with the issue of total phosphorus removal, and the fact that it creates a condition that may make it impossible for the City POTW to meet its limits for total nitrogen and ammonia. Such conditions make the City's treatment process so delicate and unstable that it could make industrial discharges to the City sewer system toxic. This, as well as the public cost associated with meeting these conditions, obviously has a direct effect on the long-term viability of industry in the City of Attleboro, which has already seen a tremendous decline in its economic vitality over recent years.

The process for removing phosphorus to concentrations below 0.1 ppm may require a combination of biological and chemical treatment. Enhanced biological phosphorus removal (EBPR) system requires the operation of an activated sludge process to include an anaerobic contact zone followed by an aerobic zone to develop special species of bacteria called Phosphorus Accumulating Organisms



(PAO). Increased demands for nutrient phosphorus and nitrogen removal will complicate the POTW plant operation considering the following:

1. Phosphorus, after being absorbed into the aerated biomass, is removed from the wastewater as the sludge is wasted from the daily operation. Increased daily sludge wasting required for increased phosphorus removal increases the loss of nitrifying microorganisms and increases the nitrification control difficulty.
2. The phosphorus absorption kinetics are fast and the required retention time is relatively short compared to BOD removal and nitrification. Operating parameters adjusted to maximize phosphorus removal don't favor nitrification, in particular.
3. Operation of the activated sludge system for phosphorus removal requires operational control of the F/M and BOD/P ratios within suitable range. These added operational controls complicate the operation for BOD reduction and nitrification.
4. An EBPR system needs the addition of an anoxic contact zone at the influent end; the anoxic contact zone must be deprived of dissolved oxygen below 0.5 ppm to enable the PAO to uptake fatty acids while degrading stored polyphosphates to phosphorus for generation of energy. The environments are difficult to control and may stimulate the growths of Poly-beta-hydroxyalkanoate accumulating (PHA) organisms. These PHA microorganisms with stored polymeric materials can slow down the uptake of BOD substances in the aeration tank to complicate the BOD removal.
5. Chemical precipitation of residual phosphorus is required to reduce the residual phosphorus to 0.1 ppm following the EBPR system. Aluminum and ferric salts are currently applied in combination with a sand filter to precipitate and remove phosphorus to extremely low levels. These tail end operations should not interfere with biological BOD, nitrification and EBPR operations, however the risk of increasing these chemicals to meet the new lower limit could result in a toxic accumulation of metals in the plant RAS that further inhibits nitrification processes and makes the plant less stable.

The end result of the EPA's proposed limits as discussed above could be counterproductive and create an increased environmental liability for the Ten Mile River as well as a less viable industrial base for the community and the Commonwealth.

**Response #G.1:** We concur that treatment plant operation will be more challenging when trying to balance biological phosphorus removal with biological nitrogen removal. A well-designed treatment system upgrade can minimize these challenges. Also, it is important to note that while biological phosphorus removal has some advantages, *e.g.*, reduced chemical use, it alone will not achieve the



required phosphorus limit. However, chemical precipitation and effluent filtration can achieve the limit without biological phosphorus removal.

Contrary to the commenter's claim, there is no reason to conclude that biological phosphorus removal will necessarily interfere with BOD removal or that chemicals utilized for precipitating phosphorus interfere with nitrification in a significant manner. Many facilities utilize biological phosphorus removal and/or chemical precipitation and also achieve very high BOD removal rates and very high nitrification levels.

Even if EPA were to agree with the premise of the comment above—that the proposed phosphorus effluent limit will necessarily carry with it other adverse environmental and economic consequences—this would not be justification under the CWA for removing this water quality-based permit limit. See Response #F9 relative to cost considerations and technological feasibility when establishing water quality-based limits.

**The following comment was received from the Riverways Program, MA Department of Fish and Game, in an August 2007 letter:**

**Comment #H.1:** The discussion provided in the Fact Sheet accompanying the modified permit presents sound and compelling reasoning for a reduction in the allowable total phosphorus concentration in the effluent from this facility. It is clear from the Fact Sheet discussion that the lower concentration is needed to address the water quality impairments in the receiving waters and the water quality standards established by Rhode Island - into whose waters the Ten Mile River flows. We support the 0.1 mg/l concentration limitation for phosphorus proposed and hope this limit will result in improved conditions in the Ten Mile River.

**Response #H.1:** The comment is noted for the record.



### **Section 401 Certification:**

In its Section 401 certification of the permit, MassDEP raised several general technical, legal and policy issues pertaining to the permit. Further, as a condition of state certification, MassDEP included a compliance schedule for attaining the total phosphorus effluent limit.

MassDEP's first comment relates to the basis for the phosphorus effluent limit. In MassDEP's view, EPA erred by requiring Rhode Island water quality standards for lakes to be met in manmade impoundments such as Turner Reservoir. MassDEP states that this error places the entire burden of mitigation of the water quality impairments caused by impoundments on upstream communities that may have played no part in the original decision to alter the hydrology. The more equitable path, MassDEP argues, would have been for EPA to work with Rhode Island to remove the dams forming the impoundments, or worked with both states to develop an equitable distribution of costs associated with the mitigation of the water quality impairments.

At the outset, EPA wishes to emphasize that even if MassDEP's equitable argument were used as a basis for not applying Rhode Island's numeric criterion to Turner Reservoir, the phosphorus limitation in the permit would remain unchanged. MassDEP's comment assumes that the phosphorus limit was established solely to achieve Rhode Island water quality standards in Rhode Island impoundments located downstream of the Attleboro discharge. This is incorrect. As discussed extensively in the Response to Comments (see Responses #F.1 and #F.2) and the Fact Sheet, the phosphorus limit is not only necessary to achieve water quality standards in Rhode Island, but also to meet water quality standards applicable to the free flowing segments of the Ten Mile River in Massachusetts. Contrary to the implication created by MassDEP's comment, the phosphorus limitation was not made more stringent to achieve water quality standards in Rhode Island.

EPA believes that it has reasonably interpreted and applied relevant Rhode Island water quality standards pertaining to lakes and ponds. When crafting permit limits to comply with Rhode Island water quality standards, EPA cannot arbitrarily create a differentiation between manmade and naturally occurring lakes and ponds where no such distinction exists under the standards. As discussed in the Response to Comments (see Response #F.6), Rhode Island's water quality standards do not differentiate between natural and manmade water bodies in establishing the numeric phosphorus criterion applicable to lakes and ponds. Under Rhode Island standards, a "lake, pond or reservoir" is defined as "any body of water, whether naturally occurring or created in whole or in part, excluding sedimentation control or stormwater retention/detention basins, unless constructed in waters of the State." See Rhode Island Water Quality Regulations, Rule 7 ("Definitions"); see also Rule 4 ("Liberal Application") ("The terms and



provisions of these rules and regulations shall be liberally construed to allow the Department to effectuate the purposes of state law.”<sup>31</sup>

With respect to dam removal, EPA's authority under the NPDES program is limited to imposing reasonable limits and conditions related to the point source discharge that will, among other things, ensure compliance with applicable water quality standards of all affected states. EPA has carried out its responsibility in this regard by imposing a phosphorus effluent limit on the Attleboro facility. EPA cannot mandate removal of a downstream dam through an NPDES permit as a means to achieve compliance with standards. In this instance, questions regarding the desirability and feasibility of dam removal would appear to fall primarily within the ambit of Massachusetts and Rhode Island rather than EPA. As MassDEP is aware, portions of the downstream impoundments are in fact in Massachusetts and appear on the state's 303(d) list as impaired for nutrients. While MassDEP observes that it may take many years to fully restore uses in the downstream impoundments even with the new phosphorus limits, this in EPA's view is all the more reason to expeditiously proceed with placing necessary controls on dischargers in the watershed that are contributing to the impairment.

MassDEP also commented on the lack of a TMDL for nitrogen, and that proceeding without a TMDL is unfair to Massachusetts dischargers. This issue is also discussed extensively in the response to comments (see Response #A.1). The law is clear that a TMDL is not required before water quality-based limitation may be included in NPDES permits, as Massachusetts itself acknowledges in its certification. EPA has concluded that the permit includes effluent limits that are supported by the available information, and also believes that the limits in the permit are equitable when compared to the limitations included in numerous RIDEM permits issued to the Rhode Island POTWs impacting the Seekonk River.

Finally, as a condition of state certification MassDEP asks EPA to include a schedule in the permit for achieving the phosphorus limitation.<sup>32</sup> The proposed

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<sup>31</sup> It is worth noting that under Massachusetts Surface Water Quality Standards, the definition of lake set forth at 314 C.M.R. 4.02 includes the following provision: “The Department may determine, on a case by case basis, that...a dammed river or stream impoundment is a lake or pond based on aquatic and other resources or uses to be protected.”

<sup>32</sup> EPA assumes this condition pertains to achievement of the summer seasonal limit of 0.1 mg/l that is in effect between May 1 and October 31. The permit also includes a winter seasonal limit of 1.0 mg/l in effect November 1 through April 30. This latter limit is subject to a one year compliance schedule, which provides the facility sufficient time to develop operational experience with winter phosphorus removal (there were no winter phosphorus limits in previous permit) and to make any changes necessary to winterize its phosphorus removal equipment. The nitrogen limit in effect during this period is an optimization-only requirement. This limit requires the permittee to optimize nitrogen removal consistent with achieving the phosphorus limit of 1.0 mg/l and thus provides inherent flexibility in terms of balancing (to the extent necessary, if at all) the treatment processes for the two nutrients.



schedule requires the permittee to attain compliance with the limitation within 48 months of the effective date of the permit.

Section 401(a)(1) of the CWA requires all NPDES permit applicants to obtain a certification from the appropriate state agency validating the permit's compliance with the pertinent federal and state water pollution control standards. *See* CWA § 401(a)(1). The regulatory provisions pertaining to state certification provide that EPA may not issue a permit until a certification is granted or waived by the state in which the discharge originates. 40 C.F.R. § 124.53(a). The regulations further provide that "when certification is required...no final permit shall be issued...unless the final permit incorporates the requirements specified in the certification under § 124.53(e)." 40 C.F.R. § 124.55(a). Section 124.53(e) provides that the State certification shall include "any conditions more stringent than those in the draft permit which the State finds necessary to "assure compliance with, among other things, state water quality standards, 40 C.F.R. § 124.53(e)(2), and shall include "[a] statement of the extent to which each condition of the draft permit can be made less stringent without violating the requirements of State law, including water quality standards," *id.* § 124.53(e)(3). Under 40 C.F.R. § 124.55(c), "a State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition."

EPA's "duty under CWA section 401 to defer to considerations of State law is intended to prevent EPA from *relaxing* any requirements, limitations, or conditions imposed by the State law." *In re City of Jacksonville*, 4 E.A.D. 150, 157 (EAB 1992); *In re City of Moscow*, 10 E.A.D. 135, 151 (EAB 2001); *accord In re Ina Rd. Water Pollution Control Facility*, 2 E.A.D. 99, 100 (CJO 100). However, "when the Region reasonably believes that a state [WQS] requires a more stringent permit limitation than that specified by the state, the Region has an independent *duty* under section 301(b)(1)(C) of the CWA to include more stringent permit limitations." *Moscow*, 10 E.A.D. at 151 (emphasis in original); *accord In re City of Marlborough*, 12 E.A.D. 235, 252 n. 22 (EAB 2005); *Jacksonville*, 4 E.A.D. at 158; *Ina Rd.*, 2 E.A.D. at 100 (stating that such "duty is independent of State certification under [section] 401"). EPA's regulations similarly interpret the statute to impose such an independent duty when EPA issues an NPDES permit. 40 C.F.R. §§ 122.4(a), (d); 122.44(d)(1), (5).

Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by an NPDES permit. Schedules of compliance are governed by 40 C.F.R. § 122.47, which requires, among other things, that "[a] permit may, when appropriate, specify a schedule of compliance leading to compliance with CWA and regulations." The schedule "shall require compliance as soon as possible, but not later than the applicable statutory deadline under the CWA." *Id.* § 122.47(a)(1). Compliance schedules have been authorized under Massachusetts Surface Water Quality Standards on a discretionary basis. *See* 314 CMR 4.03(1)(b) ("A permit may, when appropriate, specify a schedule leading to compliance with the Massachusetts and Federal Clean Water Acts and



regulations.”). EPA-issued permits for Massachusetts’ discharges may therefore include schedules leading to compliance with water quality-based limits on a discretionary basis if “appropriate” and if compliance is achieved “as soon as possible.”

In its Section 401 certification, Massachusetts states that “as a condition of the [its] certification,” it is requiring imposition of a 4-year compliance schedule to achieve the permit’s phosphorus limit. Based on its review of effluent data from the facility, EPA has determined that inclusion of such a schedule is not appropriate under 301(b)(1)(C) because the City is already fundamentally in compliance with the new limit, and that a four year schedule would not represent the soonest possible compliance date. As shown on Attachment 13, the data submitted by the City in 2007 shows that the facility achieved a monthly average discharge total phosphorus concentration of 0.1 mg/l or less for the months of May through October. The facility is achieving these limits utilizing the multi-point chemical addition and filtration facilities designed to achieve a monthly average effluent concentration of 0.2 mg/l. EPA’s decision to reject MassDEP’s proposed compliance schedule based on recent plant performance data is consistent with NPDES regulations governing state certification conditions and schedules of compliance. *See* 40 C.F.R. § 124.55(f). (“Nothing in this section [“Effect of State certification”] shall affect EPA’s obligation to comply with § 122.47. *See* CWA section 301(b)(1)(C).”). *See also* *Moscow*, 10 E.A.D. at 152 (rejecting a state’s characterization of its proposal for less stringent limits as “conditions” of its certification).

EPA has also concluded that a compliance schedule would be inappropriate at this time for reasons of administrative efficiency. The limits and requirements on total nitrogen are established solely to ensure compliance with the Rhode Island Water Quality Standards. Because compliance schedules are not authorized under Rhode Island’s standards, EPA intends to address compliance with the permit’s nitrogen limit through an administrative order following issuance of the final permit. While information in the record currently before EPA does not suggest the need for additional time to comply with the phosphorus limit, EPA is aware that the phosphorus and nitrogen removal processes are potentially interdependent. EPA believes any future adjustment regarding compliance with the phosphorus limit should be addressed in an administrative order once the details of the nitrogen compliance schedule, including interim limits, have been determined and the justification for such schedule becomes apparent. This will allow EPA to consider the combined costs and construction implications of meeting the permit’s limits for nutrients. EPA will consider MassDEP’s proposed schedule in any future determination it makes. Since, as discussed above, the State’s certification authority cannot limit the inclusion by EPA of any more stringent condition required by section 301(b)(1)(C) of the CWA, EPA reads MassDEP’s proposed compliance schedule as describing the least stringent compliance schedule that the State would consider acceptable under State law. *See also* *Moscow*, 10 E.A.D. at 152 (noting use of phrase in certification calling



for compliance “on or before” the referenced compliance deadline and concluding that an “an approach to compliance schedules that, while more stringent, is within the outer bounds of what the State deems acceptable, would not be *inconsistent* [emphasis in original] with the State's certification”).

**Other Changes:**

1. The final permit includes an updated Attachment A, FRESHWATER CHRONIC TOXICITY TEST PROCEDURE AND PROTOCOL. An updated procedure and protocol for this test was released by Region I since public notice of the draft permit, and is now being required of all NPDES permittees in Massachusetts required to perform this test. EPA considers this a minor change
2. The final permit includes an updated version of NPDES PART II STANDARD CONDITIONS. This version has been re-formatted and reorganized but contains the same requirements as the original.
3. A paragraph has been added to Part I..D, Unauthorized Discharges, that describes how to report an unauthorized discharge to MassDEP. The paragraph reads, “Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes DEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at <http://www.mass.gov/dep/water/approvals/surffms.htm#sso>.”



Attachment 1





## Attachment 2

### Summer Flows in Ten Mile River at East Providence USGS gage and at the North Attleborough and Attleboro WWTFs

Flow at USGS gage 01109403, Ten Mile River at East Providence, RI  
Drainage area 53.1 square miles  
7Q10 = 12.7 cfs

Year	Monthly mean flow in cfs			Avg
	July	August	Sept	
2002	24.5	17.6	35.0	25.7
2003	72.2	80.2	47.7	66.7
2004	35.2	54.0	53.7	47.6
2005	33.2	24.0	34.2	30.5
2006	97.2	45.5	43.3	62.0
Avg	52.5	44.3	42.8	46.5

#### Treatment Plant flows from DMRs

#### Summer Discharge Flow - Attleboro WPCF

DATE	MO AVG		SUMMER AVG
	(MGD)	(cfs)	
7/31/2002	3.9	6.0	
8/31/2002	4	6.2	
9/30/2002	4.1	6.3	6.2
7/31/2003	4.7	7.3	
8/31/2003	4.6	7.1	
9/30/2003	4.4	6.8	7.1
7/31/2004	4.5	7.0	
8/31/2004	4.1	6.3	
9/30/2004	2.9	4.5	5.9
7/31/2005	2.7	4.2	
8/31/2005	2.8	4.3	
9/30/2005	2.7	4.2	4.2
7/31/2006	3.6	5.6	
8/31/2006	3	4.6	
9/30/2006	2.6	4.0	4.7
Avg	3.6	5.6	

#### Summer Discharge Flow - North Attleboro WPCF

DATE	MO AVG		SUMMER AVG
	(MGD)	(cfs)	
7/31/2002	2.77	4.3	
8/31/2002	2.31	3.6	
9/30/2002	2.57	4.0	3.9
7/31/2003	3.9	6.0	
8/31/2003	3.96	6.1	
9/30/2003	3.52	5.4	5.9
7/31/2004	2.8	4.3	
8/31/2004	3.05	4.7	
9/30/2004	3.09	4.8	4.6
7/31/2005	2.72	4.2	
8/31/2005	2.59	4.0	
9/30/2005	2.88	4.5	4.2
7/31/2006	3.93	6.1	
8/31/2006	3.02	4.7	
9/30/2006	3.13	4.8	5.2
Avg	3.1	4.8	



Attachment 3

Total Nitrogen Load to Ten Mile River

	North Attleborough WWTF	Attleborough WWTF	E Providence USGS gage flow minus POTW flow	Comment
Summer average conditions (cfs)	4.8	5.6	36.1	Summer average flows based on 2002-2006 data
DIN (TN - 2 mg/l for POTWS)	5	22.5	0.3	WWTF data is average of May-Oct 2007 DMR data
Total Nitrogen Load (lbs.day)	129	679	58	Total Load = 866 lbs/day
Percent of Total Load	15%	78%	7%	
Percent of POTW Load	16%	84%		



10. Corps Site Visit. On June 24, 1999, the Corps visited the site. The general impression was that Turner Reservoir did not look very appealing as a public water supply (see Figure 2). There were thick mats of aquatic weeds and algae lining most of the shoreline and extending out for a dozen yards or more in many places. There were also a lot of waterfowl, especially Canada geese, and their droppings were heavy along parts of the shoreline.

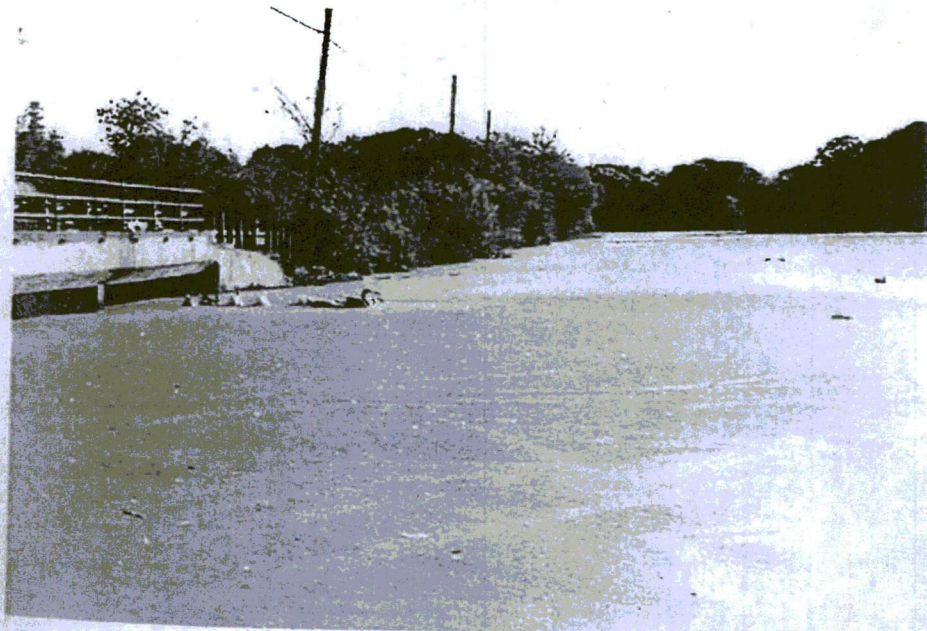
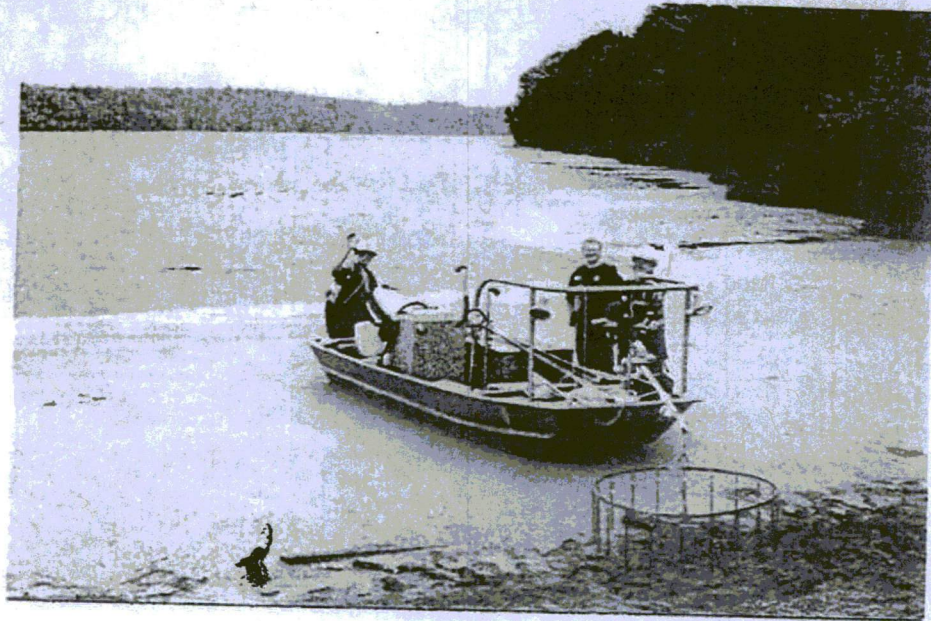


Figure 2. - Photographs illustrating the presence of duckweed at Turner Reservoir in the vicinity of the small beach area and adjacent to Route 152.



Attachment 5  
Ten Mile River  
2002 MassDEP Total Phosphorus Sampling Data

Station ID		5/15/02	6/18/02	7/23/02	8/27/02	10/1/02
	Mean flow at USGS gage -Pawtucket Ave E Providence (cfs)	310	71	19	17	31
	Sampling Station Location	Total Phosphorus - (mg/l)				
TM01	Ten Mile River at Fuller Street (downstream of Fuller Pond), Plainville	0.012		0.014		0.034
TM02	Ten Mile River at West Bacon Street, Plainville	0.022	0.046	0.055	0.074	0.031
TM04	Ten Mile River at Rte 1, North Attleboro	0.04	0.04	0.16	0.093	0.078
TM06	Ten Mile River at Cedar Street, North Attleboro	0.037	0.047	0.15	0.12	0.11
TM06A	Ten Mile River off Clifton Street (500 feet downstream of N Attleboro WWTP)	0.072	0.27	0.78	0.81	0.45
BG02A	Bungay River at outlet of Blackinton Pond, Attleboro	0.037	0.041	0.061	0.055	0.039
TM08A	Ten Mile River at Olive Street, Attleboro	0.12	0.13	0.19	0.2	0.19
SW01	Speedway Brook at Rte 152, Attleboro	0.044	0.048	0.049	0.058	0.069
TM11	Ten Mile River at Tiffany Street, Attleboro	0.11	0.11	0.094	0.11	0.11
TM13	Ten Mile River at Pond Street, Seekonk	0.12	0.14	0.17	0.12	0.11
SM01	Sevenmile River at County Street, Attleboro	0.053	0.036	0.03	0.022	0.033
TM14	Ten Mile River at Central Avenue, Seekonk	0.13	0.2	0.17	0.15	0.11



**Part 2 NEW HAMPSHIRE GENERAL PERMIT, Permit No. NHG640000**

In compliance with the provisions of the Federal Clean Water Act, as amended (33 U.S.C. 1251 et seq.), the following general permit authorizes discharges of wastewater from potable water treatment facilities (PWTF and PWTFs) in New Hampshire to all waters, unless otherwise restricted, in accordance with effluent limitations, monitoring requirements and other conditions set forth herein. The State of New Hampshire does not allow discharges to Class A waters under this general permit.

PWTF treatment processes eligible for coverage under this general permit include clarification, coagulation, media filtration, membrane filtration (not including reverse osmosis), and disinfection. Discharges from other potable drinking water treatment processes may be included, if they are reported in the Notice of Intent (NOI) and attain the effluent limits and other conditions of this general permit.

Those discharges authorized by this general permit may be commingled with other discharges as long as the authorized discharge is monitored separately (prior to commingling) for compliance with the requirements of this general permit and any non-authorized discharge is either covered by another NPDES permit or excluded from requiring an NPDES permit by EPA regulation or statute.

The general permit shall become effective on the date of signature.

This general permit and the authorization to discharge supersedes the general permit issued on November 15, 2000, and will expire at midnight, 5 years from the last day of the month preceding the effective date.

Signed this 25<sup>th</sup> day of September, 2009

\_\_\_\_\_/S/  
Stephen S. Perkins, Director  
Office of Ecosystem Protection  
U.S. Environmental Protection Agency  
Boston, MA 02114



## 2.1 Discharge Limits and Monitoring Requirements

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge wastewaters from potable water treatment facilities. Each outfall discharging such wastewaters shall be limited and monitored as specified below.

Effluent Characteristics		Discharge Limitations		Monitoring Requirements	
Parameter	Units	Avg. Monthly	Max Daily	Monitoring Frequency	Sample Type <sup>2</sup>
Flow <sup>1</sup>	MGD	Report	1.0	1/Week	Estimate or Totalizer
TSS	mg/l	30	50	1/Week	Composite
pH	std units	6.5-8.0 range <sup>3</sup>		1/Week	Grab
Total Residual Chlorine <sup>4,5</sup>	ug/l	See Part 2.2.3		1/Week	Grab
Aluminum, Total Recoverable <sup>6,7</sup>	ug/l	----	Report	1/Month	Composite
Arsenic, Total Recoverable <sup>8</sup>	ug/l	----	Report	1/Month	Composite
LC <sub>50</sub> & NOEC	%	See Part 2.2.4			Composite

### Footnotes:

1. Discharge flow is limited to the average monthly and maximum daily rates applied for in the NOI. The daily maximum flow allowed by this general permit rate shall be no greater than 1.0 MGD.
2. The composite samples shall consist of at least 4 grab samples collected at approximately equal intervals on a flow weighted basis during the time at which the discharge is entering the receiving water after the start of a backwash cycle. The timing of grab samples for pH and total residual chlorine shall correspond with the timing of composite sampling for the other parameters.
3. If addition of chemicals is required to achieve these pH limitations, such chemicals may be used, provided that they are identified either in the NOI or through subsequent communications with EPA and NHDES. The permittee may submit a written request to EPA requesting a change in the permitted pH range as described in Part 2.3.3 of this general permit.